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Translation

## PATENT COOPERATION TREATY

PCT/EP2003/008239



## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

|  |  |   |
|--|--|---|
| Applicant's or agent's file reference<br>P11039WO  | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |   |
| International application No.<br>PCT/EP2003/008239   | International filing date (day/month/year)<br>25 July 2003 (25.07.2003)  | Priority date (day/month/year)<br>25 July 2002 (25.07.2002) |
| International Patent Classification (IPC) or national classification and IPC<br>B21D 45/00 |  |   |
| Applicant<br>WEIGELT, Harald   |  |   |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

|   |   |
|---|---|
| Date of submission of the demand<br>23 February 2004 (23.02.2004) | Date of completion of this report<br>15 October 2004 (15.10.2004) |
| Name and mailing address of the IPEA/EP                           | Authorized officer  |
| Facsimile No.   | Telephone No.   |

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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## I. Basis of the report

1. This report has been drawn on the basis of (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.):

☐ the international application as originally filed.

☒ the description, pages 1-22, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the claims, Nos. \_\_\_\_\_, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. 1-15, filed with the letter of 13 July 2004 (13.07.2004),  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

☒ the drawings, sheets/fig 1/4-4/4, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_  
☐ the claims, Nos. \_\_\_\_\_  
☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

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## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.☐ claims Nos. \_\_\_\_\_

because:

☐ the said international application, or the said claims Nos. \_\_\_\_\_  
relate to the following subject matter which does not require an international preliminary examination (*specify*):☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. \_\_\_\_\_  
are so unclear that no meaningful opinion could be formed (*specify*):☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported  
by the description that no meaningful opinion could be formed.☒ no international search report has been established for said claims Nos. \_\_\_\_\_ 6

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |        |           |     |
|-------------------------------|--------|-----------|-----|
| Novelty (N)                   | Claims | 1-5, 7-15 | YES |
|                               | Claims |           | NO  |
| Inventive step (IS)           | Claims | 1-5, 7-15 | YES |
|                               | Claims |           | NO  |
| Industrial applicability (IA) | Claims | 1-5, 7-15 | YES |
|                               | Claims |           | NO  |

## 2. Citations and explanations

The stripping device known from US-A-2168377 (D1) is regarded as the closest prior art. This stripping device corresponds to the stripping device indicated in the preamble of claim 1 and, furthermore, shows the feature in the characterizing part of claim 1 that an anti-twist device is provided for substantially preventing the stripping element from rotating.

Therefore, the subject matter of claim 1 differs from the known stripping device in that in the anti-twist arrangement the stripping element is asymmetrically paired, in at least one direction, with a hole or an opening in the guide element for inserting the stripping element, in order to ensure that the stripping element is inserted with a one-to-one orientation.

Therefore, the subject matter of independent claim 1 is novel (PCT Article 33(2)).

The problem to be solved by the present invention can be regarded as that of providing improved twist prevention.

The solution to this problem as proposed in claim 1 of the present application involves an inventive step (PCT

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Article 33(3)). None of the documents cited in the search report discloses that in an anti-twist arrangement the stripping element is asymmetrically paired, in at least one direction, with a hole or an opening in the guide element for inserting the stripping element, in order to ensure that the stripping element is inserted with a one-to-one orientation.

Therefore, proceeding from a stripping device according to D1, the prior art contains nothing that suggests a device according to claim 1.

Claims 2-5 and 7-15 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step.

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New Claims

1. A stripping device (3) for use with a cutting tool  
(1) with a cutting element, in particular a punch (2),  
5 for machining a workpiece, in particular a curved metal  
sheet (6), at least one fastening piece (4, 28, 40) for  
fastening it to the cutting tool, a spring-elastic  
element (21) arranged outside the workpiece contact  
region, a stripping element (15, 34) which comes into  
10 contact with the workpiece and surrounds the cutting  
element (2), and at least one guide element (11, 26,  
33) guiding the stripping element (15, 34) being  
provided, characterized in that a device for securing  
against rotation to essentially prevent the stripping  
15 element (15) from rotating is provided, the device for  
securing against rotation having a pairing, formed  
asymmetrically at least in one direction, of stripping  
element and a hole or an opening in the guide element  
in which to fit the stripping element so as to ensure  
20 that the stripping element will be installed with a  
unique orientation.

2. The stripping device (3) as claimed in claim 1,  
characterized in that the device for securing against  
25 rotation comprises a stripping element with an  
irregular cross-sectional shape.

3. The stripping device (3) as claimed in claim 1 or  
2, characterized in that the device for securing  
30 against rotation comprises an elongated hole (14) or  
polygonal hole in the guide element.

4. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that an elongated  
35 hole having three straight sides (141, 142, 143, 311,  
312, 313) and one curved side (144, 314) and a  
correspondingly designed stripping element (15) are  
provided.

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5. The stripping device (3) as claimed in one of the preceding claims, characterized in that at least one guide sleeve (11, 26) is arranged as a guide element  
5 outside the stripping element (15), at least partially surrounding the latter in a guiding manner, and/or at least one guide bushing (33) is arranged as a guide element within the stripping element (34), guiding the latter.

10

6. The stripping device (3) as claimed in claim 5, characterized in that instead of the device for securing against rotation in the form of a pairing, formed asymmetrically in at least one direction, of  
15 stripping element and hole or opening in the guide element, two fitting shoulder screws (36) are provided for fastening to the cutting tool (1), and a region of the stripping element that surrounds the fitting shoulder screws is provided for engaging round a  
20 fastening plate (5) for the punch (2).

7. The stripping device (3) as claimed in one of the preceding claims, characterized in that at least one guide surface (19) is provided between stripping  
25 element (15) and guide element (11, 26), the length of which surface can be selected as a function of the forces acting on the stripping device, in particular shearing and lateral forces, in order to ensure tilt-free guidance.

30

8. The stripping device (3) as claimed in claim 7, characterized in that the stripping element (15) has an essentially straight section (17) and a protruding section (18), guide surfaces being provided on the  
35 straight and the protruding sections (17, 18) of the stripping element (15).

9. The stripping device (3) as claimed in one of the

preceding claims, characterized in that the stripping  
element (15, 34) has at least one guide surface on its  
inside facing a fitted cutting element (2), in  
particular the stem thereof, and/or the stripping  
5 element (15, 34) and the spring-elastic element (21)  
are oriented, surrounding the cutting element (2), in  
such a manner that they can be loaded in a manner  
essentially free from torque.

10 10. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that a lubricant  
(16), in particular a solid lubricant, is provided at  
least in a subregion of the straight section (17).

15 11. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that the guide  
element (26) is formed integrally with the fastening  
piece (28) or guide element (11) and fastening piece  
(4) are formed as elements which can be joined  
20 together.

12. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that the spring-  
elastic element (21) is arranged between stripping  
25 element (15) or guide element (33) and cutting tool (1)  
and/or within the guide element (11, 26).

13. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that at least one  
30 protruding region (50) and/or protruding section (51),  
in particular a claw- or clamp-shaped section, is or  
are provided on the circumference of the fastening  
piece (4) for engaging around a fastening device (5) of  
the cutting tool (1), in particular standardized  
35 fastening plate.

14. The stripping device (3) as claimed in one of the  
preceding claims, characterized in that the stripping



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5 element (15, 34) can be provided or is provided with a shape corresponding to the workpiece and consists, in particular, of bronze or another material which can be machined and matched to the shape of the workpiece surface.

10 15. The stripping device (3) as claimed in one of the preceding claims, characterized in that the spring-elastic element (21) is a rubber spring or consists of another spring-elastic, restoring or flexible material.